

Title (en)

METHOD AND APPARATUS FOR INTERNALLY MARKING A SUBSTRATE HAVING A ROUGH SURFACE

Title (de)

VERFAHREN UND VORRICHTUNG ZUR INTERNEN MARKIERUNG EINES SUBSTRATS MIT RAUER OBERFLÄCHE

Title (fr)

PROCÉDÉ ET APPAREIL POUR MARQUER INTÉRIEUREMENT UN SUBSTRAT AYANT UNE SURFACE RUGUEUSE

Publication

**EP 3077149 A4 20170920 (EN)**

Application

**EP 14867057 A 20141202**

Priority

- US 201361912192 P 20131205
- US 2014068185 W 20141202

Abstract (en)

[origin: US2015158116A1] A method for laser processing provides a coating material (130) applied to a rough surface (42) of a substrate (44) to mitigate adverse optical effects that would be caused by roughness of the surface (42). Laser pulses (52) of the laser output of suitable parameters can be directed and focused to internally mark the substrate (44) material without damaging the rough surface (42) after passing through the coating material (130).

IPC 8 full level

**B23K 26/00** (2014.01); **B23K 26/08** (2014.01); **B23K 26/36** (2014.01); **B23K 26/53** (2014.01); **B23K 26/55** (2014.01); **B23K 37/02** (2006.01)

CPC (source: EP KR US)

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Citation (search report)

- [X] US 2011226747 A1 20110922 - FURUTA KENJI [JP]
- [A] WO 03033199 A1 20030424 - U C LASER LTD [IL], et al
- See references of WO 2015084860A1

Designated contracting state (EPC)

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DOCDB simple family (publication)

**US 2015158116 A1 20150611**; CN 105916626 A 20160831; EP 3077149 A1 20161012; EP 3077149 A4 20170920; JP 2016539005 A 20161215; KR 20160093593 A 20160808; TW 201531362 A 20150816; WO 2015084860 A1 20150611

DOCDB simple family (application)

**US 201414558324 A 20141202**; CN 201480066186 A 20141202; EP 14867057 A 20141202; JP 2016531986 A 20141202; KR 20167009575 A 20141202; TW 103142124 A 20141204; US 2014068185 W 20141202